

REMARKS

Claims 1 and 4-17 are pending in this application, claims 5-17 having been withdrawn from consideration. By this Amendment, claim 1 is amended, and claims 2 and 3 are canceled. Support for the amendments to claim 1 can be found in the specification as originally filed, for example at page 10, lines 12-14; page 16, lines 3-7; page 16, line 21 - page 17, line 1; page 35, lines 5-10; in Examples at page 25, line 5 - page 30, line 16; and in claims 1, 2 and 3 as originally filed. Thus, no new matter is added by these amendments.

The Office Action rejects claims 1-4 under 35 U.S.C. §102(e) or, in the alternative, under 35 U.S.C. §103(a) over U.S. Patent Application Publication No. 2003/0157420 A1 to Bando et al. Applicant respectfully traverses this rejection with respect to claims 1 and 4, claims 2 and 3 having been canceled by this Amendment.

Independent claim 1 sets forth a "transfer member comprising: a polyimide resin and a carbon black, wherein: the carbon black has a pH value of no more than 5 and a volatile component of at least 3.5 wt%; the carbon black is dispersed by colliding under a pressure of 150 MPa or more; the content of the carbon black comprises 22 to 30 parts by weight relative to 100 parts by weight of the polyimide resin; the transfer member has a surface resistivity of $1 \times 10^8 \Omega/\square$ to $1 \times 10^{15} \Omega/\square$; and the transfer member has a volume resistivity of $1 \times 10^6 \Omega \cdot \text{cm}$ to $1 \times 10^{13} \Omega \cdot \text{cm}$." Claim 4 depends from claim 1 and incorporates all of the limitations thereof.

Bando discloses intermediate transfer members comprising polyimide resins and carbon black, such as Special Black 4, which is used in the Examples of the instant specification and of Bando. *See* Specification, page 25, line 5 - page 30, line 16; Bando, paragraphs [0109], [0115]. In addition, Bando teaches that its disclosed carbon blacks have pH values that are less than 5 and volatile components of at least 3.5% by weight, and in which the carbon blacks are present in amounts in the range of 10-50% by weight based on

the polyamide resin. *See* Bando, paragraphs [0116], [0118]. Bando also discloses that the surface resistivity of its transfer belts is preferably in a range of from 8 Ω/\square to 15 Ω/\square . *See* Bando, paragraph [0128]. The Office Action takes the position that the pending claims would have been anticipated by or obvious over Bando because of these teachings. Applicant respectfully disagrees.

While Bando teaches the transfer members described above, Bando does not teach the volume resistivity of the transfer member, as set forth in claim 1. *See generally* Bando. Indeed, Bando does not provide any teachings or suggestions relating to its transfer members' volume resistivities. *See* Bando, paragraphs [0107]-[0129]. Bando merely discloses the surface resistivity of its transfer members. *See* Bando, paragraph [0128]. Thus, Bando neither discloses nor suggests the claimed transfer member volume resistivity.

In addition, Bando does not teach that the "carbon black is dispersed by colliding under a pressure of 150 MPa or more," as set forth in claim 1. *See generally* Bando. Rather, Bando teaches mixing the carbon black into the polyimide resin by stirring. *See* Bando, paragraphs [0119], [0145]. The Office Action asserts that Bando produces "acceptable results" using a ball mill and stirring to disperse the carbon black, rather than the method of the Examples in the instant specification. Applicant respectfully disagrees.

Applicant has prepared additional Comparative Examples 5-7, which clarify the distinctions between the pending claims and the disclosures and Examples of Bando. *See generally*, Declaration Under 37 C.F.R. §1.132 of Shigeru FUKUDA (attached). The transfer member of Comparative Example 5 contains carbon black, in an amount that is within the scope of the teachings of Bando and the instant specification, and the carbon black is dispersed by ball mill and stirring, as taught by Bando. *See* Declaration, page 2, lines 10-24; Bando, paragraphs [0118], [0145]. Comparative Example 5 was evaluated by the methods described in the instant specification, and can be compared directly to the Examples and

Comparative Examples in the specification. *See* Declaration, page 3, lines 11-27. As evident from Table 2 of the Declaration, the transfer member of Comparative Example 5, which incorporates the teachings of Bando, cannot achieve the superior surface properties relating to glossiness and surface protrusions or the superior image density of transfer members in which the carbon black is dispersed according to the pending claims. *See id.*; Specification, page 32, line 14 - page 33, line 9; Table 1, page 34.

Further, Comparative Examples 6 and 7 illustrate that dispersing carbon black, in the amounts set forth in the claims, by colliding at pressures of 150 MPa or more yields unexpected and superior results.

The transfer member of Comparative Example 6 is prepared according to Example 1 of the specification, with the exceptions that carbon black was included in an amount of 22 phr and the colliding pressure was 100 MPa. *See* Declaration, page 2, line 25 - page 3, line 4; Specification, page 25, line 9 - page 10, line 10. That is, Comparative Example 6 includes an amount of carbon black that is within the scope of the pending claims, but disperses the carbon black at a pressure below the claimed colliding pressures.

The transfer member of Comparative Example 7 is prepared according to Example 1 of the specification, with the exceptions that carbon black was included in an amount of 20.5 phr and the colliding pressure was 150 MPa. *See* Declaration, page 3, lines 5-10; Specification, page 25, line 9 - page 10, line 10. That is, Comparative Example 7 includes an amount of carbon black that is outside the scope of the pending claims, but disperses the carbon black at a pressure within the claimed colliding pressures.

Like Comparative Example 5 above, Comparative Examples 6 and 7 were evaluated by the methods described in the instant specification, and can be compared directly to the Examples and Comparative Examples in the specification. *See* Declaration, page 3, lines 11-27. As evident from Table 2 of the Declaration, the transfer member of Comparative

Example 6 cannot achieve the superior surface properties relating to glossiness and surface protrusions or the superior image density of transfer members in which the carbon black is dispersed according to the pending claims. *See id.*; Specification, page 32, line 14 - page 33, line 9; Table 1, page 34. The transfer member of Comparative Example 7 also cannot achieve the superior image density of transfer members in which the carbon black is dispersed according to the pending claims. *See id.* These results show that the superior properties of claimed transfer members result from preparing the transfer member by dispersing 22 to 30 parts by weight, relative to 100 parts by weight of the polyimide resin, of carbon black "by colliding under a pressure of 150 MPa or more."

For at least these reasons, the pending claims are patentable over Bando.

Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1 and 4-17 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Attachment:

Declaration Under 37 C.F.R. §1.132 of Shigeru FUKUDA

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